What is claimed is:

[01] (Currently Amended) ~~An architecture~~ A method and apparatus for the measurement of photomask optical path difference, the apparatus comprising:

A spatially coherent light source;

An interferometric beam processing module;

An optical microscope; and

A photosensitive detector;

Wherein said module is disposed to receive and divide light from said light source into a number of phase-coherent light beams, each of which passes through ~~a separate~~ an aperture;

Wherein said microscope is disposed to image the multitude of said apertures in said module with a given demagnification onto a photomask in order to create a multitude of phase probes; and

Wherein said detector is disposed to ~~record~~ receive the transmitted fringe ~~intensity~~ pattern caused by the interference of the multitude of said phase probes;

and the method comprising the step of measuring the shift in interference fringe patterns recorded for different phase probe positions on the photomask.

[02] (Original) The apparatus of claim 1 wherein said light source is a laser with a wavelength that is approximately the same as the actinic wavelength of said photomask.

[03] (Original) The apparatus of claim 1 wherein said optical demagnification of said apertures is greater than 50.

[04] (Original) The apparatus of claim 1 wherein said module is of the Mach-Zehnder (MZ) interferometer type.

[05] (Currently Amended) The apparatus of claim 1 wherein the relative optical phase between said ~~phase-coherent light beams~~ phase probes may be varied by suitable adjustments to said ~~interferometric beam~~ module.

[06] (Original) The apparatus of claim 1 wherein said module is a dual-aperture screen.

[07] (Canceled)

[08] (Original) The apparatus of claim 1 wherein said detector is a UV-sensitive CCD camera.

[09] (Original) The apparatus of claim 1 wherein said detector is a photomultiplier tube (PMT).

[10] (Currently Amended) The apparatus of claim 1 wherein the number of said ~~apertures and said phase-coherent light beams~~ phase probes is two (2).

[11] (Currently Amended) ~~An architecture~~ A method and apparatus for the measurement of photomask optical path difference, the apparatus comprising:

A spatially coherent light source;

An interferometric beam processing module;

An optical microscope; and

A photosensitive detector;

Wherein said module is disposed to receive and divide light from said light source into a number of phase-coherent light beams, each of which passes through ~~a separate~~ an aperture;

Wherein said microscope is disposed to image the multitude of said apertures in said module with a given demagnification onto a photomask in order to create a multitude of phase probes; and

Wherein said detector is disposed to ~~record~~ receive the reflected fringe ~~intensity~~ pattern caused by the interference of the multitude of said phase probes;

and the method comprising the step of measuring the shift in interference fringe patterns recorded for different phase probe positions on the photomask.

[12] (Original) The apparatus of claim 11 wherein said light source is a laser with a wavelength that is approximately the same as the actinic wavelength of said photomask.

[13] (Original) The apparatus of claim 11 wherein said optical demagnification of said apertures is greater than 50.

[14] (Original) The apparatus of claim 11 wherein said module is of the Mach-Zehnder (MZ) interferometer type.

[15] (Currently Amended) The apparatus of claim 11 wherein the relative optical phase between said ~~phase-coherent light beams~~ phase probes may be varied by suitable adjustments to said ~~interferometric beam~~ module.

[16] (Original) The apparatus of claim 11 wherein said module is a dual-aperture screen.

[17] (Canceled).

[18] (Original) The apparatus of claim 11 wherein said detector is a UV-sensitive CCD camera.

[19] (Original) The apparatus of claim 11 wherein said detector is a photomultiplier tube (PMT).

[20] (Currently Amended) The apparatus of claim 11 wherein the number of said ~~apertures and said phase-coherent light beams~~ phase probes is two (2).